Material: Polyethyleneterephtalate
Abbreviation: PET

Short description of material:

A partially crystalline thermoplastic with high hardness, stiffness and mechanical strength as well as good creep resistance. PET has very good sliding properties and shows very little wear. Because of its good dimensional stability, it is also suitable for parts with tight dimensional Tolerance requirements.

Application examples:

- precision bushings
- switching wheels
- cams
- counting mechanisms
- insulators

Colors: natural (white), black

		dry	
Mechanical values			
Density	ISO 1183	1,38	g/cm^3
Yield Stress	ISO 527	80	MPa
Elongation due to tearing	ISO 527	40	%
Modulus of elasticity resulting from tensile test	ISO 527	3.000	MPa
Modulus of elasticity resulting from bending test	ISO 178	2.600	MPa
Flexural strength	ISO 178	125	MPa
Impact strength[1)]	ISO 179	o.B.	kJ/m^2
Notched –bar impact strength	ISO 179	> 4	kJ/m^2
Ball indentation hardness $H_{358/30}$	ISO 2039-1	140	MPa
Creep rate stress at 1% elongation[2)]	DIN 53 444	13	MPa
Sliding friction coefficient against steel (dry running) [3)]	------	0,25	------
Sliding wear against steel (dry running) [3)]	- ------	0,35	µm/km
Thermal values			
Melting temperature	ISO 3146	+255	^0C
Thermal conductivity	DIN 52612	0, 24	W/ (K·m)
Specific thermal capacity	------	1,1	J/ (g·k)
Coefficient of linear expansion[4)]	------	7 -- 8	$10^{-5}\cdot K^{-1}$
Operating temperature range (long-term)[5)]	------	-20 / +100	^0C
Operating temperature range (short-term)[5)]	------	+160	^0C
Fire behavior	UL 94	HB	------
Electrical values			
Dielectric constant[6)]	IEC 250	3,6	------
Dielectric loss factor[6)]	IEC 250	0,008	----
Specific volume resistance	IEC 93	10^{16}	Ω· cm
Surface resistance	IEC 93	10^{14}	Ω
Dielectric strength	IEC 243	60	KV/mm
Creep current resistance	IEC112	KC 350	----
Miscellaneous data			
Moisture absorption in normal climate until saturated	DIN 53 715	0, 25	%
Water absorption until saturated	ISO 62	0, 5	%

1; Measured with a pendulum impact testing machine 0,1 DIN 51 222
2; Tension resulting in 1% total elongation after1.000 h
3; against steel, hardened and ground , P = 0,05 MPa, V=0,6 m/s, t = 60 ^0C near running surface
4; For a temperature range of + 23 ^0C to + 60 ^0C
5; Experience values established with finished part that are not under any stress in heated air, depending on the type and from of heat exposure, short-term = max. 1 h long term = months
6; at 10^6 Hz

w.b. = without breakage
1 MPa = 1 N/mm^2
1 g/cm^3 = 1.000 kg/m^3
1 kV/mm = 1 MV/m

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